DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 13.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-011360
Date Inspected: 08-Jan-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Oregon Iron Works Clackamas, Or.

OSM Arrival Time: 1000
OSM Departure Time: 1830
Location: Clackamas, OR

CWI Name: M. Gregson, J. Salazar, G. Mundt

CWI Present:	☑ Yes	☐ No		**Inspected CWI report:**	☐ Yes	☑ No	☐ N/A
Rod Oven in Use:	☐ Yes	☐ No	☑ N/A	**Electrode to specification:**	☑ Yes	☐ No	☐ N/A
Weld Procedures Followed:	☑ Yes	☐ No	☐ N/A	**Qualified Welders:**	☑ Yes	☐ No	☐ N/A
Verified Joint Fit-up:	☑ Yes	☐ No	☐ N/A	**Approved Drawings:**	☑ Yes	☐ No	☐ N/A
Approved WPS:	☑ Yes	☐ No	☐ N/A				
Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A				

Bridge No: 34-0006
Component: Hinge K Pipe Beams

Summary of Items Observed:

The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

Hinge-K Pipe Beam Assembly 102A-3
a111-3 Forging to a110-3 Base Plate
The QA Inspector noted that WID# O6, Mr. Tim O'Brian was continuing to blend the weld start/stops, removing weld spatter and grinding all areas, which were previously marked by OIW QC Inspectors. The QA Inspector noted that these areas were on the previously completed submerged arc welded (SAW), HPS 485W stiffeners, designated as weld joints #W1-01 thru W1-163. The QA Inspector spoke with QC Inspector Jose Salazar and Mr. Salazar explained that the visual clean-up that was being performed by Mr. O'Brian, was intermittently monitored and areas that were completed, were then visually re-inspected. See attached picture below.

Hinge-K Pipe Beam Assembly 102A-1
a111-1 Forging to a110-1 Base Plate
The QA Inspector witnessed WID #T23, Mr. John Tellone, performing the submerged arc welding (SAW) on the a110-3 Base plate to b106 HPS 485W stiffener. The QA Inspector noted that this weld joint was designated as a partial joint penetration (AWS D1.5 TC-P4-S), weld joint #W2-17 and Mr. Tellone was performing the SAW in the flat (1G) position. The QA Inspector noted that Mr. Tellone was currently performing the SAW root pass and noted that Mr. Tellone was utilizing OIW approved welding procedure specification (WPS 4020). The QA

Inspector noted that QC Inspector Jose Salazar, was present and Mr. Salazar explained to the QA Inspector that the in-process welding parameters/pre-heat temperatures, were intermittently verified. Mr. Salazar explained that average welding parameters for the SAW root pass, was recorded at 563 amps/35 volts, with a pre-heat of approximately 350 degrees Fahrenheit (177 C). The QA Inspector randomly verified pre-heat of approximately 350 degrees Fahrenheit (177 C) and welding parameters to be in compliance with the WPS 4020. The QA Inspector noted that the SAW performed by Mr. Tellone, appeared to be in-compliance with AWS D1.5 and the applicable WPS 4020. See attached picture below.

OIW Fabrication Shop-Bay 6 (ESW Overlay Process)
Hinge-K Pipe Beam Fuse Assembly 120A-6
The QA Inspector noticed that the third and final ESW stainless steel overlay passes were in-process, on this fuse assembly 120A-6. QA Inspector witnessed WID #F17, Mr. Igor Frolov performing electro slag welding (ESW) on the third layer welding passes, in the flat position. The QA Inspector noted that approximately 2 ESW passes were left to complete the third layer, utilizing the 316L stainless steel consumable strip. The QA Inspector randomly noticed QC Inspector Jose Salazar was present, to verify in-process welding parameters (amps/volts) and monitor in-process continuous pre-heat temperatures. QC Inspector Salazar explained to the QA Inspector that welding amperage was previously recorded at 1200 amps/24.5 volts, travel speed at 229mm/min. and a pre-heat temperature recorded at 70 degrees Fahrenheit (21 C). The QA Inspector verified the welding parameters and the minimum pre-heat temperatures were in compliance with the applicable WPS 7003. The QA Inspector verified Mr. Igor Frolov was currently qualified for this welding process and position. The QA Inspector noted that the ESW being performed appeared to be in compliance with WPS 7003. See attached picture below.
The QA Inspector was present on this swing shift and witnessed WID#V7, Mr. Vincent Vue performing electro slag welding (ESW) on the final 2 ESW welding passes, utilizing the 316L stainless steel consumable strip, in the flat position. The QA Inspector randomly noticed QC Inspector Gary Mundt was present, to verify in-process welding parameters (amps/volts) and monitor in-process continuous pre-heat temperatures. QC Inspector Mundt explained to the QA Inspector that welding amperage was previously recorded at 1200 amps/24.5 volts, travel speed of 223mm/min. and a pre-heat temperature recorded at 70 degrees Fahrenheit (21 C). The QA Inspector later noted that the ESW was previously completed and an OIW production helper was grinding on the finished ESW overlay. The QA Inspector noted that the helper was blending the weld terminations and removing excessive flux, present on the overlay. The QA Inspector noted that the ESW being performed appeared to be in compliance with WPS 7003.

Material, Equipment, and Labor Tracking (MELT)
QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project.
The QA Inspector observed at Oregon Iron Works: 5 OIW production personnel and 2 QC Inspectors.
The QA Inspector noted that the following personell were present at AG Machine shop: 1AG machinist and 1 AG supervisor.
The QA Inspector noted that no work was performed at OIW Vancouver paint shop.

WELDING INSPECTION REPORT

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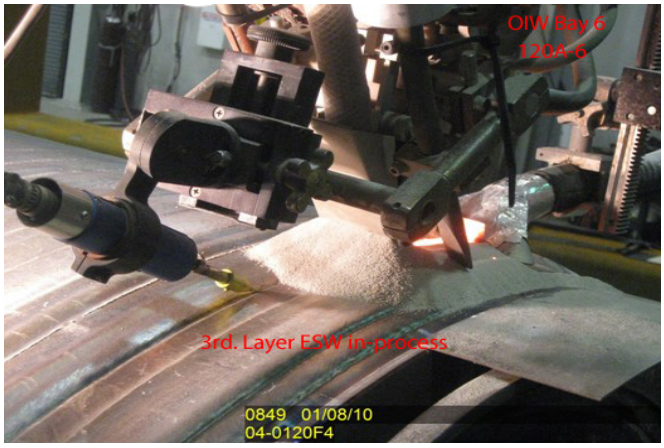

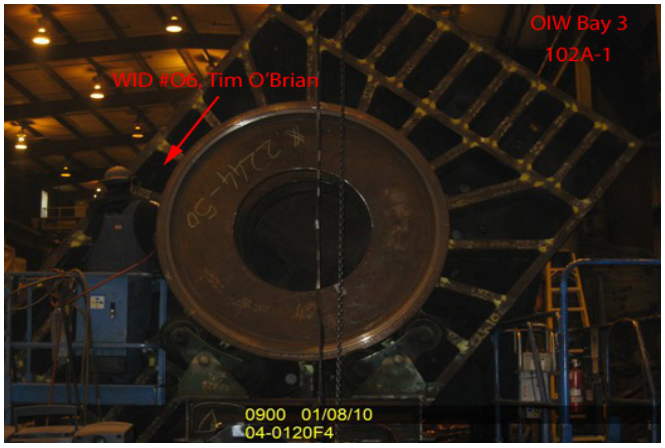

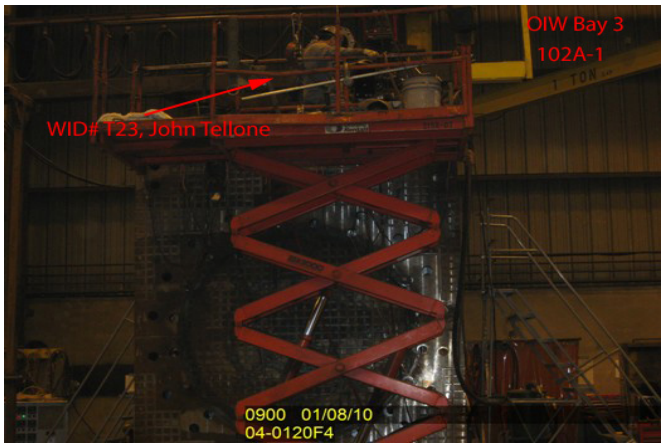

Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Vance,Sean	Quality Assurance Inspector
Reviewed By:	Adame,Joe	QA Reviewer